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[711] Ultrafast quenching of phase coherence in cuprate superconductors revealed by TR-ARPES

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Angle-resolved photoemission spectroscopy (ARPES), and its extension in the time-resolved regime (TR-ARPES), has revealed to be a powerful technique to study of unconventional superconductivity. In this contribution I will present our TR-ARPES measurements on the cuprate $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$. By employing a pulse of duration comparable to the timescales of the superconducting state we demonstrate the capability of the pump pulse to manipulate the phase fluctuations [1] and the electron-bosons coupling [2] independently of the pairing.

[1]F. Boschini, E. H. da Silva Neto, E. Razzoli, et al., "Collapse of superconductivity in cuprates via ultrafast quenching of phase coherence" *Nature Materials* 17, 416(2018).

[2]E. Razzoli, F. Boschini et al., "Ultrafast reduction of electron-boson kink induced by phase coherence loss in cuprates" in submission(2019).

Author: RAZZOLI, Elia (PSI - Paul Scherrer Institut)

Co-authors: Dr BOSCHINI, Fabio (UBC); Prof. DA SILVA NETO, Eduardo (UC Davis); Ms ZONNO, Marta (UBC); Prof. DAMASCELLI, Andrea (UBC)

Presenter: RAZZOLI, Elia (PSI - Paul Scherrer Institut)

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